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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,132	06/16/2005	Klaus Schultes	272480US0PCT	2289
22850	7590	05/26/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER REDDY, KARUNA P	
			ART UNIT	PAPER NUMBER
			1796	
			NOTIFICATION DATE	DELIVERY MODE
			05/26/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/539,132	<b>Applicant(s)</b> SCHULTES ET AL.	
	<b>Examiner</b> KARUNA P. REDDY	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18 and 20-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18, 20-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 5/4/2009 has been entered. Claims 1-17, 19 are cancelled; claims 18, 30 are amended. Accordingly, claims 18, 20-38 are currently pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

3. Claims 18, 20-23, 25-31 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of DeWitt (US 4, 173, 596).

Hofmann discloses a multistage, sequential process for making an acrylic graft copolymer. Upon blending with a non-resilient methacrylic matrix resin, followed by molding, an impact resistant molded product is obtained (abstract).

See example 8 for the process of making a four stage resin, where initial charge comprises 20,000 g of water and 3.6 g of SDOSS (sodium dioctyl sulfosuccinate) an emulsifier (read on wt% of emulsifier and water in claim 20). The proportion of

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monomers in stage 2 (2820 g MMA, 180 g EA and 12 g ALMA), stage 3 (4863 g BA, 1110 g S, and 110 g ALMA), and stage 4 (2256 g MMA and 144 g EA) read on the proportions of monomers in stage 1, 2 and 3 respectively of claim 18.  $K_2S_2O_8$  i.e. potassium peroxodisulphate (KPS) in demineralized water was added to initiate polymerization reaction. The monomer mixture in stages 3 and 4 (equivalent of stages 2 and 3 of present claims) is metered in over a period of several minutes. The first stage is used as a seed or core around which either more of the first stage or subsequent stages are polymerized in layers (column 2, lines 57-60).

Generally, the final particle size should be preferably between about 0.15 to 0.35 microns i.e. 150 to 250 nm (column 2, line 68, column 3, line 1). A blend of 20 lbs. of graft polymer (i.e. core-shell polymer particle) and 30 lbs. of Lucite® 47F (MMA/EA; 94/6) was prepared and the blend was extruded in a twin screw extruder (column 10, lines 18-20).

Hofmann differs with respect to initial charge which is an emulsion of a seed latex whose particle radius is 3.0 to 20 nm; total weight of components A-J, based on total weight of aqueous dispersion; properties of molded product and amount of coagulate in the dispersion.

However, DeWitt teaches improved impact modifiers prepared by emulsion polymerization in the presence of seed latex (column 2, lines 66-68). Latex is initially provided wherein polymer particles are dispersed in an aqueous medium. These polymer particles have an average size range of from about 200 to about 2,000 Å units (column 3, lines 59-62) i.e. 20 to 200 nm. Therefore, it would have been obvious to continue the polymerization of first stage, in Hofmann, until a seed polymer with a particle size of 20 nm to 200 nm (i.e. radius of 10 nm to 100 nm) is obtained because

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DeWitt teaches using seed latex having a particle size of 20 to 200 nm to obtain a core-shell polymer particle that provides improved impact strength.

With respect to the total weight of components A-J, proportion of monomers in examples of Hofmann read on the proportion of components A-J of instant invention.

The amount of solvent i.e. water used to form emulsion or dispersion is within the scope of a skilled artisan and can be varied depending on the desired solids content and end use requirements, absent evidence of unexpected results.

With respect to the properties of molded product and amount of coagulate in the dispersion, given that prior art teaches / discloses essentially the same molding composition and aqueous dispersion is made by a substantially similar process as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that the molding composition of prior art would exhibit essentially the same properties under similar test conditions and aqueous dispersion would contain 0.1% or less by weight of coagulate. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

4. Claims 18, 20-21, 25-31 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of Takarabe et al (US 4, 914, 142).

Hofmann discloses a multistage, sequential process for making an acrylic graft copolymer. Upon blending with a non-resilient methacrylic matrix resin, followed by molding, an impact resistant molded product is obtained (abstract).

See example 8 for the process of making a four stage resin, where initial charge comprises 20,000 g of water and 3.6 g of SDOSS (sodium dioctyl sulfosuccinate) an

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emulsifier (read on wt% of emulsifier and water in claim 20). The proportion of monomers in stage 2 (2820 g MMA, 180 g EA and 12 g ALMA), stage 3 (4863 g BA, 1110 g S, and 110 g ALMA), and stage 4 (2256 g MMA and 144 g EA) read on the proportions of monomers in stage 1, 2 and 3 respectively of claim 18.  $K_2S_2O_8$  i.e. potassium peroxodisulphate (KPS) in demineralized water was added to initiate polymerization reaction. The monomer mixture in stages 3 and 4 (equivalent of stages 2 and 3 of present claims) is metered in over a period of several minutes. The first stage is used as a seed or core around which either more of the first stage or subsequent stages are polymerized in layers (column 2, lines 57-60).

Generally, the final particle size should be preferably between about 0.15 to 0.35 microns i.e. 150 to 250 nm (column 2, line 68, column 3, line 1). A blend of 20 lbs. of graft polymer (i.e. core-shell polymer particle) and 30 lbs. of Lucite® 47F (MMA/EA; 94/6) was prepared and the blend was extruded in a twin screw extruder (column 10, lines 18-20).

Hofmann is silent with respect to initial charge of an aqueous emulsion of a long chain alcohol; total weight of components A-J, based on the total weight of aqueous dispersion; properties of molded product, and amount of coagulate in the dispersion.

However, Takarabe et al teach a method by which a highly monodisperse emulsion polymer can be produced while the occurrence of a coagulum or new particles during the polymerization is inhibited to a low level (column 2, lines 30-36). The object is achieved by adding a polymerizable monomer to an emulsion polymer containing a high-molecular weight compound as a seed polymer and thereafter, polymerizing the monomer in presence of a film forming aid (column 2, lines 37-46). Typical examples of the film-forming aid include ethylene glycol, isopropyl benzyl alcohol and alkyl-

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substituted glycols having 3 to 8 carbon atoms (column 3, lines 24-46). Therefore, it would have been obvious at the time invention was made to add film forming aid such as alcohol to the initial charge of Hofmann to obtain a highly monodisperse emulsion comprising core-shell polymer particle while maintaining coagulum or new particle formation at a low level.

With respect to total weight of components A-J, the proportion of monomers in examples of Hofmann read on the proportion of components A-J of instant invention. The amount of solvent i.e. water used to form emulsion or dispersion is within the scope of a skilled artisan and can be varied depending on the desired solids content and end use requirements, absent evidence of unexpected results.

With respect to the properties of molded product, given that prior art teaches / discloses essentially the same molding composition and is made by a substantially similar process as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that the molding composition of prior art would exhibit essentially the same properties under similar test conditions. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

With respect to the amount of coagulum in aqueous dispersion, given that Hofmann teaches a substantially similar process for forming an aqueous dispersion and Takarabe et al teach polymerizing monomers in the presence of film forming aids such as ethylene glycol, isopropyl benzyl alcohol and alkyl-substituted glycols to obtain dispersions with low level of coagulum, one of ordinary skill in the art would have a reasonable basis to believe that the aqueous dispersion of Hofmann in view of Takarabe

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et al would have coagulum content of 0.1% or less by weight. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

5. Claims 18, 20-21, 24-31 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of Morningstar et al (US 4, 371, 677).

Hofmann discloses a multistage, sequential process for making an acrylic graft copolymer. Upon blending with a non-resilient methacrylic matrix resin, followed by molding, an impact resistant molded product is obtained (abstract).

See example 8 for the process of making a four stage resin, where initial charge comprises 20,000 g of water and 3.6 g of SDOSS (sodium dioctyl sulfosuccinate) an emulsifier (read on wt% of emulsifier and water in claim 20). The proportion of monomers in stage 2 (2820 g MMA, 180 g EA and 12 g ALMA), stage 3 (4863 g BA, 1110 g S, and 110 g ALMA), and stage 4 (2256 g MMA and 144 g EA) read on the proportions of monomers in stage 1, 2 and 3 respectively of claim 18.  $K_2S_2O_8$  i.e. potassium peroxodisulphate (KPS) in demineralized water was added to initiate polymerization reaction. The monomer mixture in stages 3 and 4 (equivalent of stages 2 and 3 of present claims) is metered in over a period of several minutes. The first stage is used as a seed or core around which either more of the first stage or subsequent stages are polymerized in layers (column 2, lines 57-60).

Generally, the final particle size should be preferably between about 0.15 to 0.35 microns i.e. 150 to 250 nm (column 2, line 68, column 3, line 1). A blend of 20 lbs.



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of graft polymer (i.e. core-shell polymer particle) and 30 lbs. of Lucite® 47F (MMA/EA; 94/6) was prepared and the blend was extruded in a twin screw extruder (column 10, lines 18-20).

Hofmann is silent with respect to initial charge of an aqueous emulsion of a long chain alcohol; total weight of components A-J, based on total weight of aqueous dispersion; properties of molded product; amount of coagulate in the dispersion.

However, Morningstar et al disclose a process for making dispersion copolymers (abstract). The addition of long straight chain saturated alcohol, containing from 8 to 24 carbon atoms, in the emulsifier system increases colloidal stability of the polymerization and reduces the amount of coagulum in the copolymer latex. Examples of such alcohols include dodecanol, tridecanol, tetradecanol, docosanol etc. (column 3, lines 28-40).

Therefore, it would have been obvious to add long straight chain saturated alcohol containing from 12 to 22 carbon atoms to the initial charge of Hofmann for reducing the amount of coagulum in the copolymer latex.

With respect to total weight of components A-J, the proportion of monomers in examples of Hofmann read on the proportion of components A-J of instant invention. The amount of solvent i.e. water used to form emulsion or dispersion is within the scope of a skilled artisan and can be varied depending on the desired solids content and end use requirements, absent evidence of unexpected results.

With respect to the properties of molded product, given that prior art teaches / discloses essentially the same molding composition and is made by a substantially similar process as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that the molding composition of prior art would exhibit essentially the same properties under similar test conditions. Since PTO cannot conduct

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experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

With respect to the amount of coagulum in aqueous dispersion, given that Hofmann teaches a substantially similar process for forming an aqueous dispersion and Morningstar et al teach that addition of long straight chain saturated alcohol, containing from 8 to 24 carbon atoms, in the emulsifier system increases colloidal stability of polymerization and reduces the amount of coagulum in copolymer latex, one of ordinary skill in the art would have a reasonable basis to believe that aqueous dispersion of Hofmann in view of Morningstar et al would have coagulum content of 0.1% or less by weight. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of DeWitt (US 4, 173, 596) as applied to claim 30 above, and further in view of Falk et al (US 4, 542, 179).

The discussion with respect to Hofmann in view of DeWitt in paragraph 3 above is incorporated here by reference.

Hofmann in view of DeWitt is silent with respect to the use of styrene-acrylonitrile in the molding composition.

However, Falk et al teach that addition of styrene-acrylonitrile copolymer to acrylic core-shell polymers reduces mold shrinkage and improves surface hardness. The styrene-acrylonitrile copolymer resins useful in the practice of this invention are

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copolymers of styrene and acrylonitrile comprising from 50 to 90% by weight of styrene and 10 to 50% by weight of acrylonitrile. Therefore, it would have been obvious to one skilled in the art at the time invention was made to add styrene-acrylonitrile copolymers to the molding composition containing core-shell polymers of Hofmann in view of DeWitt, and obtain a mold with reduced shrinkage and improved surface hardness.

7. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of DeWitt (US 4, 173, 596) as applied to claim 30 above, and further in view of Shah et al (US 5, 777, 034).

The discussion with respect to Hofmann in view of DeWitt in paragraph 3 above is incorporated here by reference.

Hofmann in view of DeWitt is silent with respect to the molding composition comprising 0.1 to 10.0% by weight of another polymer with a molecular weight higher by at least 10% than that of (meth)acrylic polymer.

However, Shah et al teach a methacrylate resin blend composition having improved solvent craze resistance. The improvement is achieved in a simple way while retaining the blend composition's desirable properties such as weather resistance, molding, impact resistance and mechanical properties (column 1, lines 1-10). The blend composition contains a methacrylate matrix resin, particles of a single layer polymer and optionally an acrylic multi-layer polymer. The particles of a single layer polymer have a weight average molecular weight of at least 120% of the  $M_w$  of the methacrylate matrix resin component (abstract). The simple incorporation of SLP's (single layer polymer) into the methacrylate matrix resin provides the improvement in craze resistance (column 4, line 67; column 5, lines 1-3). The matrix resin will comprise 50 to 90 wt%, the impact

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modifier resin from 0 to 50 wt% and the single layer polymer from 1 to 50 wt% of the blend composition (column 6, lines 42-45). Therefore, it would have been obvious to one skilled in the art at the time invention was made to add a polymer having a molecular weight of at least 120% of the  $M_w$  of methacrylate resin of Hofmann in view of DeWitt, in an amount of from 1 to 50 wt% and obtain a molding composition that will exhibit improved solvent craze resistance.

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of Takarabe et al (US 4, 914, 142) as applied to claim 30 above, and further in view of Falk et al (US 4, 542, 179).

The discussion with respect to Hofmann in view of Takarabe et al in paragraph 4 above is incorporated here by reference.

Hofmann in view of Takarabe et al is silent with respect to the use of styrene-acrylonitrile in the molding composition.

However, Falk et al teach that addition of styrene-acrylonitrile copolymer to acrylic core-shell polymers reduces mold shrinkage and improves surface hardness. The styrene-acrylonitrile copolymer resins useful in the practice of this invention are copolymers of styrene and acrylonitrile comprising from 50 to 90% by weight of styrene and 10 to 50% by weight of acrylonitrile. Therefore, it would have been obvious to one skilled in the art at the time invention was made to add styrene-acrylonitrile copolymers to the molding composition containing core-shell polymers of Hofmann in view of Takarabe et al, and obtain a mold with reduced shrinkage and improved surface hardness.

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9. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of Takarabe et al (US 4, 914, 142) as applied to claim 30 above, and further in view of Shah et al (US 5, 777, 034).

The discussion with respect to Hofmann in view of Takarabe et al in paragraph 4 above is incorporated here by reference.

Hofmann in view of Takarabe et al is silent with respect to the molding composition comprising 0.1 to 10.0% by weight of another polymer with a molecular weight higher by at least 10% than that of (meth)acrylic polymer.

However, Shah et al teach a methacrylate resin blend composition having improved solvent craze resistance. The improvement is achieved in a simple way while retaining the blend composition's desirable properties such as weather resistance, molding, impact resistance and mechanical properties (column 1, lines 1-10). The blend composition contains a methacrylate matrix resin, particles of a single layer polymer and optionally an acrylic multi-layer polymer. The particles of a single layer polymer have a weight average molecular weight of at least 120% of the  $M_w$  of the methacrylate matrix resin component (abstract). The simple incorporation of SLP's (single layer polymer) into the methacrylate matrix resin provides the improvement in craze resistance (column 4, line 67; column 5, lines 1-3). The matrix resin will comprise 50 to 90 wt%, the impact modifier resin from 0 to 50 wt% and the single layer polymer from 1 to 50 wt% of the blend composition (column 6, lines 42-45). Therefore, it would have been obvious to one skilled in the art at the time invention was made to add a polymer having a molecular weight of at least 120% of the  $M_w$  of methacrylate resin of Hofmann in view of Takarabe et al, in an amount of from 1 to 50 wt% and obtain a molding composition that will exhibit improved solvent craze resistance.

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10. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of Morningstar et al (US 4, 371, 677) as applied to claim 30 above, and further in view of Falk et al (US 4, 542, 179).

The discussion with respect to Hofmann in view of Morningstar et al in paragraph 5 above is incorporated here by reference.

Hofmann in view of Morningstar et al is silent with respect to the use of styrene-acrylonitrile in the molding composition.

However, Falk et al teach that addition of styrene-acrylonitrile copolymer to acrylic core-shell polymers reduces mold shrinkage and improves surface hardness. The styrene-acrylonitrile copolymer resins useful in the practice of this invention are copolymers of styrene and acrylonitrile comprising from 50 to 90% by weight of styrene and 10 to 50% by weight of acrylonitrile. Therefore, it would have been obvious to one skilled in the art at the time invention was made to add styrene-acrylonitrile copolymers to the molding composition containing core-shell polymers of Hofmann in view of Morningstar et al, and obtain a mold with reduced shrinkage and improved surface hardness.

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (US 4, 180, 529) in view of Morningstar et al (US 4, 371, 677) as applied to claim 30 above, and further in view of Shah et al (US 5, 777, 034).

The discussion with respect to Hofmann in view of Morningstar et al in paragraph 5 above is incorporated here by reference.

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Hofmann in view of Morningstar et al is silent with respect to the molding composition comprising 0.1 to 10.0% by weight of another polymer with a molecular weight higher by at least 10% than that of (meth)acrylic polymer.

However, Shah et al teach a methacrylate resin blend composition having improved solvent craze resistance. The improvement is achieved in a simple way while retaining the blend composition's desirable properties such as weather resistance, molding, impact resistance and mechanical properties (column 1, lines 1-10). The blend composition contains a methacrylate matrix resin, particles of a single layer polymer and optionally an acrylic multi-layer polymer. The particles of a single layer polymer have a weight average molecular weight of at least 120% of the  $M_w$  of the methacrylate matrix resin component (abstract). The simple incorporation of SLP's (single layer polymer) into the methacrylate matrix resin provides the improvement in craze resistance (column 4, line 67; column 5, lines 1-3). The matrix resin will comprise 50 to 90 wt%, the impact modifier resin from 0 to 50 wt% and the single layer polymer from 1 to 50 wt% of the blend composition (column 6, lines 42-45). Therefore, it would have been obvious to one skilled in the art at the time invention was made to add a polymer having a molecular weight of at least 120% of the  $M_w$  of methacrylate resin of Hofmann in view of Morningstar et al, in an amount of from 1 to 50 wt% and obtain a molding composition that will exhibit improved solvent craze resistance.

### ***Response to Arguments***

12. Applicant's arguments filed 5/4/2009 have been fully considered but they are not persuasive. Specifically, applicant argues that (A) any attempt to achieve a solids

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content higher than 48% by weight in examples VB1 and VB2 resulted in an increased amount of coagulate and the respective monomer contents are similar in comparative and inventive examples as can be seen from data in Tables 1 and 2. The prior art compared is closer to the presently-claimed invention than Hofmann or any other prior art applied herein; (B) Example 8 of Hofmann, which examiner particularly relies on, is disclosed as needing a coagulation step. It must be assumed therefore that the coagulate content is significantly greater than the presently recited maximum of 0.1% by weight; (C) the processes of prior art with regard to comparative data in the specification are substantially similar processes but could not achieve both the presently recited solids content and coagulate content; (D) examiner has no basis for relating the film forming aid (Takarabe et al) to the result of low coagulum content; (E) while addition of alcohol to the emulsifier system in Morningstar et al may reduce the amount of coagulum in the copolymer latex, it could not be predicted what effect the alcohol would have on subsequent polymerizations to form shells of Hofmann.

With respect to (A), monomer content from tables 1 and 2 for inventive examples B1, B2 and comparative examples VB1 and VB2, of present specification, is produced below for convenience -



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	VB1	VB2	B1	B2
Emulsion I				
MMA	8622	8276.1	14216.72	14216.72
EA		345.9	593.6	593.6
ALMA	25.9	25.9	29.68	29.68
Emulsion II				
BA	14438	14438	15454.8	15454.8
Sty	3004.2	3004.2	3453.48	3453.48
ALMA	229.74	229.74	171.72	171.72
Emulsion III				
MMA	10828.8	10828.8	7632	7632
EA	451.2	451.2	848	848

As can be seen from the data presented above trial runs are not conducted in a side-by-side manner and it is not clear what parameters/variables are responsible for the differences in coagulation content in inventive examples B1, B2 and comparative examples VB1, VB2. In addition, while temperatures used in comparative examples and inventive examples, of present invention, are 52°C and 83°C respectively, a temperature of 80°C is used in example 8 of the cited prior art of Hofmann et al. Thus, applicant's argument that monomer contents are similar, and compared prior art is closer to the presently claimed invention than cited prior art of Hoffmann is not persuasive.

With respect to (B), applicant's attention is drawn to present specification (paragraph 0182) wherein it states that the coagulated dispersion was separated by way of a filter fabric (i.e. based on this statement, assumption can be made that present invention also has a coagulation content of greater than 0.1% by weight but the experimental data shows otherwise). Given that prior art of Hofmann does not teach the wt% of coagulation content and the process is substantially similar to that of present claims, it is the examiner's position that coagulation content of less than 0.1% by weight

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is intrinsically present in the polymer dispersion formed by the process of Hofmann. It is noted that applicant's arguments should be based on facts and not assumptions.

With respect to (C), discussion with regard to comparison of inventive examples B1, B2 and comparative examples VB1, VB2 in paragraph 12 A above is incorporated here by response. The data from Tables 3-7, in present specification, for comparative examples VB3, VB4, VB5, VB6, VB7 and inventive example B1 is provided below for convenience -

	VB3	VB4	VB5	VB6	VB7	B1
Core						
MMA	99.8	99.8	98.6	98.6	98.6	95.8
MA			0.9	0.9	0.9	
EA						4.0
ALMA	0.2	0.2	0.5	0.5	0.5	0.2
1st Shell						
BA	81.1	81.1	80.1	80.1	80.1	81.0
Sty	17.9	17.9	18.9	18.9	18.9	18.1
ALMA	1.0	1.0	1.0	1.0	1.0	0.9
2nd Shell						
MMA	96.0	96.0	96.0	96.0	96.0	90.0
EA	4.0	4.0	4.0	4.0	4.0	10.0
Core-Shell Structure						
Core	25.05	25.05	20	20	20	35
1st Shell	50.5	50.5	50	50	50	45
2nd Shell	25	25	30	30	30	20
Solids content	46.3	53	50.2	50.2	53	53
coagulate content (% by weight)	0.2	> 25	0.12	0.16	20	0.1

Applicants attention is drawn to present specification (paragraph 0187) wherein

dispersions of comparative examples VB3 and VB4 are prepared with the aid of a triple

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batch i.e. monomers for the core, 1<sup>st</sup> and 2<sup>nd</sup> shell were respectively added all at once and then polymerized to completion. This is in contrast to the inventive examples and cited prior art of Hofmann wherein emulsions in each stage are metered in over a period of time. Thus, examples VB3 and VB4 are not a proper comparison because process used is substantially different from that of the present invention and cited reference of Hofmann. Applicant's attention is now drawn to comparative examples VB5, VB6 and VB7, wherein amount of core is outside the claimed range (i.e. 25.0 to 45.0 parts by weight). In addition, comparative examples VB5 and VB6 have the same monomer content, are prepared by the same process, have the same solids content (50.2% by weight which is within the claimed range i.e. > 50% by weight), but the coagulate content differ by about 0.04% by weight (i.e. 0.04% by weight of coagulate content appears to be the experimental error). It is the examiner's position that the difference between 0.1 of present claims and 0.12 of example VB5 is within experimental error. Finally, the comparative runs VB3 through VB7 are not conducted in a side-by-side manner with inventive example B1. Therefore, it is not clear what parameters/ variables are responsible for differences in coagulation content in inventive example B1 and comparative examples VB3 through VB7.

With respect to (D), applicant's attention is drawn to Takarabe et al (col. 2, lines 30-46) wherein it states that the object is to provide a method for preparing a highly monodisperse emulsion polymer while the occurrence of a coagulum or new particles during the polymerization is inhibited to a low level. The object is achieved by adding a polymerizable monomer to an emulsion polymer containing a high-molecular weight compound as a seed polymer and thereafter, polymerizing the monomer in presence of a film forming aid.

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With respect to (E), Morningstar et al refer to the addition of long straight chain saturated alcohol to the emulsifier system and this addition to the emulsifier system increases colloidal stability and reduces the amount of coagulum. It is the examiner's position that advantage of reducing coagulum content is not just restricted to core, but an emulsifier system which can include 1st and 2nd shell. Court held that it is "Obvious to try " - choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success, see MPEP § 2141.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARUNA P. REDDY whose telephone number is (571)272-6566. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. P. R./

Examiner, Art Unit 1796

/Vasu Jagannathan/

Supervisory Patent Examiner, Art Unit 1796